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## **STRAIGHTENING THE PHILLIPS CURVE, 1968-76**

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## STRAIGHTENING THE PHILLIPS CURVE, 1968-76

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### ABSTRACT

This paper looks at the change in the British Treasury's macroeconomic thinking and policymaking between Friedman's statement of the natural rate doctrine in 1968 and Prime Minister Callaghan's public abandonment of Keynesian demand management in 1976. Simultaneously rising unemployment and inflation meant that the Treasury was sceptical about the old Phillips curve from the start, but, far from moving smoothly to the expectations-augmented version, it hesitated between (i) assuming the curve had shifted outwards (ii) abandoning any idea of a Phillips curve (iii) adhering to a 'New Cambridge' curve where unemployment made inflation worse. Eventually money illusion was abandoned by a majority vote at a tense Treasury meeting.

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According to Nigel Lawson, Britain's Chancellor of the Exchequer from 1983 to 1989, the important postwar divide in macroeconomic policy was when governments stopped targeting real variables and aimed at monetary ones instead. This, to Lawson, was the criterion of being a monetarist and the reason why he put himself in that category (Lawson, 1992, p.421). This is correct, if monetarism means the version of the quantity theory that says monetary changes affect output only briefly and thereafter affect nothing but prices. By the time Lawson became Chancellor, no one who held this belief wanted to aim fiscal and monetary policy at the level of employment. There was, however, nothing in Friedman's original treatment of the quantity theory which underpinned this view at all rigorously (Friedman, 1956). In his own words there was a 'missing equation', which he published ten years later in the form of his expectations-augmented Phillips curve. This tied the long-run path of output down to the level produced by a labour force at the 'natural rate of unemployment', and carried the implication that unemployment held below the natural rate would involve not just inflation (which governments might decide to tolerate) but ever-increasing inflation. (Friedman, 1968)

This did not of itself compel Friedman's own conclusion that governments should give up demand management and simply seek to expand the quantity of money at whatever rate would give steady prices. Even with the natural rate doctrine, there could still be a role for government in smoothing out fluctuations around the natural rate. But Friedman's 1968 paper coincided with a sharp decline (and not just in Britain and the U.S.) in the reputation of fine tuning. Some econometricians found that attempts to stabilise output had actually made things worse. Even those who found a beneficial effect reported that it was small, in part because governments usually acted at least a year too late. (Bristow, 1968: Robinson, 1973: Britton, 1991)

[CHART 1 HERE]

Appendix 1 of this article gives a chronology of the main macroeconomic events between 1968-76, and chart 1 the course of unemployment and inflation between 1967 and 1977, but our study starts with Friedman's 1968 paper. No one has ever disputed this as a

landmark in the theory of macroeconomic policy. We end, however, with a far more disputed landmark, prime minister James Callaghan's speech in 1976 in which he told the Labour party conference that injecting demand into the economy no longer worked as a remedy for unemployment and, so far as it had ever worked, had only done so temporarily, leaving higher inflation as its only legacy. This sounds as Friedmanite as it is possible to get. But the significance of the speech has been whittled down by those who see it as a piece of advertisement to impress the IMF (who had just been asked for a \$5 billion loan), those who say that Callaghan did not realise its full significance, and those who argue that the break in macroeconomic policy which it should have been heralding – or recording – never happened.

We will look at these claims in due course. But for the moment our goalposts are Friedman's rebuttal of demand management at the beginning and the prime minister's at the end. What was the process by which Friedman's ideas spread? We follow their journey through one institution, Britain's Treasury. As ministers, policy advisers and forecasters argued among themselves and with one another, one thing became clear early on: the traditional Phillips curve no longer described reality – indeed there were convincing studies to show it never had. The presence of an incomes policy in one form or another throughout much of our period both diminished credence in a Phillips tradeoff and made it very difficult to estimate. But it was also one of the reasons why the sequel was anything but a smooth installation of the Friedmanite alternative. The Treasury conducted a long debate, both within itself and with the outside world, as to whether the Phillips curve had shifted, had ceased to exist, had ceased to be visible, had become horizontal, had started sloping upwards, or, finally, had at least in the long run become vertical. We now look at each of these possibilities, after a brief look at the 'old' Phillips curve.

## 1. THE OLD PHILLIPS CURVE

It is untrue – and would be extremely hard to explain if it were true – that no one before Friedman considered inflationary expectations in the wage bargain. Forder (2008) traces back the pedigree of 'the expectations critique' before Friedman, before Phillips, before Keynes

and finally before Smith, to the extent at least that Douglass (1740) was distinguishing between nominal and real interest rates. What was radical in Friedman's 1968 address, Forder argues, was not his use of inflationary expectations but his statement that only by deception of the workers could demand management bring unemployment down. This did *not* follow automatically from the rejection of money illusion. Economists could fully realise the role of inflationary expectations in the wage bargain and yet believe that reflation to cure involuntary unemployment would not raise wages in the first place (in which case the issue of shifting expectations does not arise.) Alternatively they might believe nominal wages to be sticky for reasons unrelated to money illusion, so that expansionary policies might bring unemployment down via adjustments in real wages which would not otherwise happen.

It is in this context that we should consider the fact that as late as 1971 Treasury economists were arguing that a non-expectations-augmented Phillips curve remained appropriate. Phillips' own failure to emphasise the role of expectations is put down by Forder to the fact that 'he was not advocating inflationary policy and nor did his data include any period of continuous inflation.' (Forder, 2008, p.4) But neither of these explanations will account for the Treasury's conservatism. If you want to discourage inflationary policy, what better way to do so than bring in the threat of a wage-price spiral fuelled by expectations? As for the amount of continuous inflation in the data, the whole point was that Treasury forecasters thought they did have enough inflationary experience to work with to test, and reject, the proposition that the long-run Phillips curve differed from the short-run one. Alan Budd, a future chief government economist, told Sir Bryan Hopkin (ditto) that it was clear from the wage inflation and unemployment figures that the short- and long-run curves were the same and there was no room for inflationary expectations.<sup>1</sup>

There had in fact been since 1967 two Treasury models, one used for the short-term National Income Forecast (NIF), and a separate one for the Medium Term Assessment (MTA) a simulation of what the next five years would bring if government policy remained unchanged. Economists updating both models went on proposing wage equations where neither actual nor expected price inflation played any part. In January 1971 the MTA

forecasting team did recognise that rising inflation required an update of their Phillips curve, but coped by altering the coefficient on unemployment, not by incorporating past or expected inflation.<sup>2</sup>

As for the politicians, the idea of an inflation/unemployment tradeoff, exploitable by demand management, went unchallenged through much of the Heath administration of 1970-4. Whether or not to exploit it was a question which seldom arose, given that it was the balance of payments, not inflation, that was seen as the main constraint on expansionary policy. But on 23 November 1971 Robert Carr, the secretary of state of Employment, told Parliament that ‘the sort of measures of demand management which appeared to work, and indeed did work, to control the overall level of unemployment in the past now seems to have lost some of its previous effectiveness.’ (Dell, 1996, p.386) This however did not stop the Chancellor, Anthony Barber, bringing in a budget four months later whose declared aim was to raise real gdp by 10% between the first quarter of 1971 and the first quarter of 1973. (Unemployment had just reached one million for the first time since 1940.) ‘I do not believe’ he said, ‘that a stimulus to demand of the order I propose will be inimical to the fight against inflation.’ (*Hansard*, 21 March 1972, col.1353) There was little opposition to the budget, the *Economist* even wondering if it had gone far enough.

## 2. THE SHIFTING PHILLIPS CURVE

Talk of an outward shift in the curve was at first incidental to the latest statistics – ‘with these unemployment figures, inflation should have been several points lower.’ The first proper study came from the Treasury in 1970. In ‘The Pressure of Demand and Inflation’, James Shepherd asked if the apparent shift was permanent. It might be that the UV curve had shifted outward: there were now more vacancies at any given level of unemployment and vice versa. But that could not be the whole explanation, because inflation had risen against vacancies too. Nor was a shift in the UV curve necessary for the Phillips relation to alter. Changes in ‘the political climate’ or ‘union militancy’ might have the same effect; perhaps

inflationary expectations ‘suddenly took off, though we have neither any empirical confirmation nor any theoretical explanation of why it happened when it did.’<sup>3</sup>

The position of the Phillips curve became urgent in November 1971 when Edward Heath set a target of no more than 600,000 unemployed by the end of 1972. The chief economic adviser, Sir Donald MacDougall, judged this to be feasible in the medium term but warned that the unemployment – inflation tradeoff had deteriorated thanks to ‘redundancy payments, earnings-related benefits and *continuous full employment*’ (my italics).<sup>4</sup> Thus, in contrast to the ‘hysteresis’ theories that were to become popular in the 1980s, in which high unemployment led to high equilibrium unemployment, full employment might connive in its own destruction or, at the very least, be sustainable only by ever-increasing inflation. Presumably what MacDougall had in mind was an assertive change in union attitudes as job security became ingrained.

Not everyone agreed that redundancy payments or earnings-related benefits had anything to do with it: the Department of Employment’s chief statistician Roger Thatcher was a consistent sceptic.<sup>5</sup> Nor were the policy implications, if the curve had shifted, all that clear. In his 1971 memorandum ‘Unemployment’, Brian Unwin, private secretary to the Chief Secretary to the Treasury, agreed that a ‘shake-out’ by employers meant that unemployment was higher than it used to be for any given pressure of demand but was unsure whether this made reflation more imperative (because unemployment was now harder to shift), less desirable (in case it led back to ‘inefficient use of manpower’), or even both at once.<sup>6</sup>

The people least able to avoid taking a stand on all this were the forecasters. They, too, were not sure what to do. Thus the background papers to the spring 1971 Medium Term Assessment found a shift in the position of the curve inescapable but, without clear evidence either way, assumed the slope was as before.<sup>7</sup> H.G. Walsh seized on this as a rationale for the Treasury’s current advice to the Chancellor not to deflate any further: given that the curve was (all agreed) convex to the origin, an outward shift with unchanged slope meant that the flat bit of the curve was now at a much higher inflation rate than of yore. Disinflation would thus do everything to output and very little to prices.<sup>8</sup>

In the end the MTA team concluded that the location of the Phillips curve would depend on whether workers believed the government's propaganda that inflation was the main cause of unemployment. If they did come to believe this, and/or that the government would not reflate the economy until the level of wage settlements had been reduced, 'then a more optimistic forecast would be possible. At present, such a change of attitude cannot be discerned.'<sup>9</sup>

### 3. THE DISAPPEARING PHILLIPS CURVE

By 1971 Roger Thatcher was talking about the Phillips curve in the past tense. 'The simplest of equations was the Phillips curve. But since 1969, not only the Phillips curve but all the other wage equations considered in "Prices and Earnings in 1951-69" have failed to fit the facts.'<sup>10</sup> By 1975 some in the Treasury were recognising 'sociological' theories of inflation, albeit mordantly, as the kind of thing bound to fill the vacuum if economists failed to do their job:

At one extreme are those who see wage inflation as part of a struggle between workers and employers to increase their relative share, at the other extreme is Professor Wiles who sees such factors as social depravity, long hair and drug taking as important factors in setting wages. Few such theories have any great appeal, but they reflect the growing despair of economists faced with the abject failure of deeply entrenched views on inflation to account for recent history.<sup>11</sup>

The preoccupations of forecasters and policy advisers naturally differed. The former had to decide whether to give up on the Phillips curve and plug an exogenous wage into their model (and, if so, where to find it), while the latter had to ask whether unemployment could exert any leverage on cost-push inflation, assuming such a thing existed. Economic Adviser Michael Beenstock's forceful paper of November 1970 argued that it could not.



... the labour market has become structurally aware of inflation, and this has led to a situation of a self-contained inflationary dynamic, working quite independently of excess demand ... [This must] be arrested directly [by] control of both official and unofficial actions of the trade unions and/or a statutory wages and price policy ... there would seem little point in keeping unemployment at the present high level. If the costs of inflation have to be borne then one might as well enjoy the highest rate of output compatible with external balance objectives.'<sup>12</sup>

This was the nearest anyone in the Treasury ever got to the drugs and long hair theory of inflation, but for some even this was too close. In 'Monetary Policy in the Present Situation' (1970), A.D.Neale argued that you could get inflation down to any figure you liked, if you were prepared to engineer a bad enough recession.<sup>13</sup> But even those who agreed with this as a piece of theory thought it was of limited use to policy. In January 1971 deputy secretary Douglas Wass noted that Chancellor Barber had said more than once that 'the right answer to cost inflation at present is not to take measures to reduce demand.'<sup>14</sup>

An unexpected challenge to this consensus came from Tim Boswell of the Conservative Research Department, who expressed concern that academics were burying the Phillips curve and that this constituted a green light for breakneck reflation. Boswell asked Patrick Jenkin, the Financial Secretary to the Treasury, if he had any data to cast doubt on the 'rather warm and comfortable view' that the Phillips curve had ceased to exist.<sup>15</sup> Jenkin passed this on to the Minister of State, Terence Higgins, who forwarded it to Patricia Brown, the under-secretary in overall charge of forecasting. She recommended that 'you do not send any reply. The letter does not ask for one and there is nothing substantive we could say.'

As you no doubt know many Whitehall economists now consider the Phillips curve to be non-existent, not merely broken down and the argument against going for any fast rate of growth of output has to rest on the commonsense proposition that it is best not to do something when you do not know what the consequences

may be ... if they were adverse ... in this case (wage demands) the results would be very painful indeed.<sup>16</sup>

Higgins did as advised; a two-line reply to Boswell said his comments had been ‘noted with interest.’<sup>17</sup>

In 1972 Heath brought in a statutory wages and prices policy, and in February 1974 he lost the election he had called to get a mandate to defend this policy against the miners, who were striking for an unallowable pay rise. Labour’s election campaign advertised its ability to get along with the unions, and promised a ‘Social Contract’ with them, whereby public spending increases and pro-union legislation on one side would be bartered for self-restraint on the other. Most of the Treasury was sceptical from the start -- including the new Chancellor, Denis Healey, who recalled in 2008 that he realised the Contract was not going to work ‘the moment I became Chancellor and we used to have meetings with the unions ... I realised almost immediately that the unions were worse than a waste of time because you couldn’t totally ignore what they were saying.’ (Healey, pers. comm., 9 April 2008). But Treasury doubts over the Social Contract did nothing to change its parallel scepticism as to whether inflation could be checked by unemployment. In June, Alan Budd sent Healey a memorandum ‘Why unemployment does not cure inflation.’ To those who said it did ‘the simplest answer’ was ‘to compare rates of total unemployment with rates of price increase in recent years’, which Budd proceeded to do.<sup>18</sup> Next month Sir Kenneth Berrill, the Chief Economic Adviser, appearing before the Parliamentary Expenditure Committee, proposed the ‘dog-leg’ version of the Phillips curve which would be revived as part of the Keynesian onslaught on Mrs Thatcher. Here the abolition of very low unemployment, or the engineering of very high unemployment, would in all probability bite on prices, but there was a large intermediate range where nothing happened.

We do not believe the Phillips curve over quite a large band ... but shortages of skilled labour, bottlenecks and so on .. affect ...earnings and prices. Then there

is a large flat band and what happens at the heavy levels of unemployment we do not know because we have not had that since the 1930s.<sup>19</sup>

Briefing Healey before the budget of November 1974 Douglas Wass (now Permanent Secretary) saw 'little likelihood of wage pressures easing if demand pressure were reduced below some reasonable equilibrium. Wage settlements have not in the past been very responsive to high levels of unemployment.' (In the margin someone has written 'Foot's view.')

<sup>20</sup> But by now the tide was turning. Wass himself had already shifted his position two months later when he told Healey:

.. we should not altogether discount the effect of unemployment on wage settlements. This would inevitably give rise to severe social pressures and have serious consequences for the industrial sector but I cannot see any way of reducing inflation and improving the use of resources which does not involve increased unemployment.<sup>21</sup>

Bryan Hopkin, who had by now succeeded Berrill as Chief Economic Adviser, concurred that deflation had become a necessary evil:

... To check inflation by operating on demand is of course a barbarous and wasteful method of achieving the objective. It is only justifiable if as a community we are insufficiently enlightened or have insufficient sense of community interest to accept restraint on the pursuit of individual or group money incomes, which ever is the alternative. Nevertheless, realism forces one to admit that the degree of enlightenment is inadequate.<sup>22</sup>

The Treasury's change of tack may have owed something to the doctrine of 'ripe time', whereby changes were not pressed on a government until there was some realistic prospect

that they might be heard. Wass (2008, pp.320-2) was among those who had had little confidence in the Social Contract from the start. Now, with pay settlements exceeding 30% and still rising, the door was at least ajar and susceptible to a hard push.

In general the politicians were ahead of the civil servants on the resurrection of the Phillips curve (whether or not they called it by that name.) As early as July 1974, Chancellor of the Duchy of Lancaster Harold Lever was urging that Healey use the *threat* of unemployment to bring the unions into line, telling them that unless they moderated their pay claims, he would ‘use the money supply in such a way that those who obtain unacceptably inflationary pay increases will find that they have put others out of work.’<sup>23</sup> An unknown hand wrote ‘Powellism’ in the margin, while Sir Kenneth Berrill proved more sensitive to the politics than Lever the politician. ‘Those rendered bankrupt or unemployed would not be pleased at being used to demonstrate the unreasonableness of certain other trade unions or groups of workers. They might as well blame the government accordingly.’<sup>24</sup> Industry Secretary Tony Benn was in no doubt that higher unemployment could produce ‘enforced moderation in wage inflation through the loss of bargaining power and diminished capacity to pay’ but ruled it out because it would be the end of the TUC’s and the Labour movement’s support for the government.<sup>25</sup> The last loyal fighter against any unemployment/inflation tradeoff was the Chancellor himself. In April Barbara Castle (Secretary of State for Health and Social Security) attended a Labour Party – TUC meeting and recorded that ‘Denis jumped in defensively, declaring none of us believed that unemployment was a cure for inflation.’ (Castle, 1980, p.372) Not too much should be made of this, given both the context and the ambiguity of the remark: did Healey mean that he thought unemployment was incapable of curing inflation or merely that he was ruling it out as a policy? But in June 1975 he told the Cabinet that even if a large-scale capital outflow were to precipitate spending cuts such that unemployment rose to 2 million, ‘none of these grave measures would in themselves have any effect on inflation.’<sup>26</sup>

But, once the Treasury had reached a consensus that unemployment was one of the cures for inflation, there was no shortage of refusals to estimate how much would be needed.

There was hope at first that fear of unemployment (provided it were one's own) would be enough. If only, said Michael Posner, a Cambridge don on secondment to the Treasury, 'people's confidence that jobs will always be saleable at full cost prices ... could be shaken ... But the question we must ask is how much and what type of unemployment *fears* we wish deliberately to create or tolerate ... I have no numerate feel for the payoff ... for unemployment levels greater than 3 per cent: does anyone else?'<sup>27</sup> H.H.Liesner (Economic Assessment division) was not optimistic that the threat would be enough: 'I fear that the unions would call our bluff before we called theirs.'<sup>28</sup> Kenneth Couzens (deputy secretary, Prices and Incomes) buttressed this last point when he argued that unemployment would not be a quick remedy for wage inflation and 'meanwhile Ministers would have to stand the political racket of creating it.' Couzens was not the only official to hark back to Victor Feather, the former general secretary of the TUC, and his bloodcurdling promise of 1971 'If they won't reflate we will' (via wage-driven aggregate demand.)<sup>29</sup>

In July 1975 Wilson, like Heath before him, was driven to bring in an incomes policy. This was not statutory, but the Bill threatened undisclosed powers to back it up if necessary. No one was to have a pay rise above £6 a week, and those earning over £8500 a year were to have nothing. Once the pay limit had come in, the discussion switched to how much unemployment was needed to make it stick. As Hopkin prepared a brief for the Chancellor, 'Economic Strategy', Posner asked him to 'say bluntly that we would like some extra unemployment to help in Incomes Policy and to say that you have no clear idea precisely how much unemployment is needed but that it is unlikely to be more than a million.'<sup>30</sup> Hopkin declined the quantitative (non-)estimate but effectively said the rest.<sup>31</sup>

#### 4. THE UPWARD-SLOPING PHILLIPS CURVE

The idea that expanding the economy might lower unemployment *and* inflation was to some extent rooted in the 'dash for growth' philosophy attributed to Reginald Maudling, Chancellor from 1962-4, and (more doubtfully) to Anthony Barber in the early 1970s. The idea was that a high and sustained level of demand would embolden firms to invest more.

Productivity would thus grow faster, pressure on costs would fall, and this disinflationary effect would extend the boom by seeing off its two usual terminators, domestic inflation and export uncompetitiveness. A parallel version was that growth would cure inflation by giving workers real wages which satisfied them. Some of this thinking can be seen in a note circulated by the Medium Term Assessment Committee's steering group, which claimed the drop in workers' real disposable income following the devaluation of the pound in 1967 was the reason why inflation had accelerated.<sup>32</sup> J.R. Shepherd doubted this: 'If real incomes are crucial why are demands and settlements still rising after a year of fairly fast rises in real incomes?'<sup>33</sup> Taking a long-run view Michael Beenstock thought it conceivable 'that wage increases afforded through higher output might restore wage demands to a more economically realistic footing. But such a policy is too speculative and too long run to solve immediate problems.'<sup>34</sup>

The Central Policy Review Staff, however, were more enthusiastic about the real wage resistance theory. In 'The Inflationary Explosion – Its Causes and Cures' (1971) inflation was attributed entirely to conflicting demands on resources (money was nowhere mentioned).<sup>35</sup> Slow growth made this conflict worse, and if slow growth was the villain then reflation of demand must be the remedy. By January 1972 the CPRS was telling Sir Donald MacDougall that it was 'well worth taking a risk on substantial reflation. If productivity goes up we will virtually eliminate inflation and get record increases in productivity, albeit with only a small fall in unemployment. If productivity goes wrong we will still get ... some further moderation in inflation and cyclically lower unemployment.'<sup>36</sup>

Brian Reading (author of the report), then, was *not* advocating a dash for growth on the traditional grounds that high demand was good for supply. Rather he envisaged productivity trends as independent of demand management: how they meshed with it would determine the outcome for jobs and prices. By May 1972 he was worrying that productivity might be growing fast enough to raise not just unemployment but inflation too, via the Balassa-Samuelson effect.<sup>37</sup>

With the advent of the Labour government (and its advisers brought in from Cambridge, home of the real wage resistance theory), the Social Contract, and wage inflation past the 25% mark despite rising unemployment, the reverse-sloping Phillips curve took centre stage. One Treasury official even called it ‘the Treasury orthodoxy’<sup>38</sup>, while a briefing for a possible Tory government, just before the election of October 1974, was adamant that, Treasury orthodoxy or not, it was the Labour government’s orthodoxy.<sup>39</sup> Certainly some economists found it so obvious that unemployment exacerbated inflation that they did not even say why.<sup>40</sup> Generally the link was made via unit costs<sup>41</sup>, real incomes<sup>42</sup> or both<sup>43</sup>.

The reversed Phillips curve was even more popular when an incomes policy was being attempted – if unemployment put an end to union co-operation, it would bring about accelerating inflation by the simplest of routes. Still more was this believed (at any rate to begin with) during the life of the Social Contract. If the government wanted to go on using the Contract as their main means of attacking inflation, wrote Douglas Wass in September 1974, then it ‘has got to be seen to be taking some remedial action when confronted with an economic forecast that shows rising unemployment.’<sup>44</sup> But the conditional tense is important, and suggestions of this kind ebbed away with the last dregs of the credibility of the Social Contract. Only a month later ‘the consensus’ of the Treasury’s Short-Term Economic Policy Group was that people should be allowed to see rising unemployment, some members even calling for ‘a psychological shock before action on wages and prices would be accepted.’<sup>45</sup>

The most formal incarnation of the real wage resistance theory came in Andrew Britton’s paper ‘A Model of Inflation’. Its conclusion was that the direction of the Phillips curve depended on whether prices in both the labour and goods markets were determined by buyers or sellers. If the former, then a drop in aggregate demand would cut both wages and prices. If the latter, the same drop in demand would raise prices as firms tried to hold on to profits, and then wages as workers made up for the higher prices. This meant the Phillips curve can change direction. In particular, it ‘was reversed in the late 60s because the balance of power somehow shifted in the labour market ... Of course this does not get us very far unless we know why the shift took place, and whether it is reversible.’<sup>46</sup>

## 5. THE VERTICAL PHILLIPS CURVE

The first mention in the Treasury archives of the ‘natural rate’ doctrine dates from October 1969. Setting the scene for the Treasury’s generally critical approach over the next few years, Posner picked out a paper by Solow (which challenged the doctrine) as ‘stand[ing] out among the other papers like a moon rocket amongst Guy Fawkes fireworks’

Solow’s results .... suggest that individuals do not take account of inflation in their own expectations provided that inflation is slowish, erratic and not too widely publicised or admitted ... the Friedman doctrine is that buying ‘unnatural’ increments in employment and output will in the long run be self defeating – the pace of monetary inflation will be increased without gain.

This central link has been much weakened by Professor Solow’s attack.<sup>47</sup>

A.H.Lovell doubted if the natural rate doctrine would or should make any difference to policy even if it were true. A member of the Monetary Policy Group, which had been set up specifically to look at ‘monetarism’, he reported in November 1970 that they hadn’t even looked at the natural rate doctrine but this was ‘not ... a very serious gap since the solution to dealing with wage and price inflation still lies through the exercise of demand management techniques.’ He did, however, pick out as a ‘current’ issue whether demand deflation would work through unemployment or inflationary expectations -- surely reason enough for looking at what Friedman had said.<sup>48</sup>

James Shepherd’s study of the same month – the first Treasury in-depth look at the Phillips curve for some years – was more sympathetic to Friedman. Without money illusion, he said, the long-run coefficient on price inflation in the wage equation must be unity. There would then be only one rate of unemployment ‘which is consistent with the whole range of possible rates of inflation. Any attempt to hold unemployment below this level will generate explosive inflation. This result does not turn on the full range of neoclassical assumptions



and has nothing whatever to do with Chicago school monetary theory.’ It had not enjoyed much empirical support from the U.K. data so far – the coefficient on price inflation in the wage equation ‘has always been well below one’ – but this might now be changing. It might be that higher and more persistent inflation was entrenching expectations into the wage bargain so that we were now ‘close to a genuine natural rate of unemployment.’<sup>49</sup> This would explain the failure to find a traditional Phillips curve in the past few years.

By now some of the politicians were beginning to take an interest in a theory with such radical policy implications. Few of them can have been readers of the *Quarterly Journal of Economics*, but an exception was Patrick Jenkin, the Financial Secretary to the Treasury, who asked Shepherd for his views on Akerlof’s recent *QJE* article – a radical attempt to dismantle the Friedman doctrine from its foundations. Shepherd expounded ‘the Chicago doctrine’ that faster monetary growth might produce a temporary boom but the only long-run effect was higher inflation and higher nominal interest rates. ‘There is a fair degree of agreement among economists that [this] picture is broadly correct if one takes a sufficiently long view’, although it left open the issue of ‘how practical and desirable it is to make use of the short-term effects in order to influence the economy.’<sup>50</sup>

Putting inflationary expectations into the wage equation, even with a coefficient of unity, will only yield a vertical Phillips curve if unemployment stays in the equation too. Yet some authorities, puzzled by the curve’s apparent disappearance, wanted to put in inflationary expectations *instead* of unemployment. The CPRS’s 50-page report ‘The Inflationary Explosion’ (March 1972) stated confidently that, after 1968, wages stopped responding to demand and started responding to prices instead.<sup>51</sup> The Treasury’s Henry Neuberger, whose work we look at below, was to take the same position, as did (from a very different theoretical standpoint) the London Business School model in the mid 1970s, where inflation was generated in the foreign exchange market and fed through from prices into wages without mention of unemployment or pressure of demand.

But by now there does seem to have been a consensus that, if unemployment influenced wages at all, only money illusion could save the unemployment-inflation tradeoff. Some

even saw money illusion as an endangered institution which must be saved if macroeconomic policy was going to work. The Treasury's Home Finance Division used this point to try to talk the Bank out of issuing index-linked securities.<sup>52</sup> The Treasury itself, at Healey's request, held a debate on extending indexation from which nothing in the economy was excluded. S.J.Davies argued 'that full indexation would render it impossible to reduce unemployment by Keynesian methods [which] can only succeed in the presence of money illusion.'<sup>53</sup>

Behind the scenes the slope of the Phillips curve continued to be contested. Patricia Brown pointed to a seniority split when she warned Hopkin that a forthcoming 'Meeting on the Price-Earnings Link' would 'have to be rather large because nearly all the economic advisers have either or both a real interest or strong views. Those lower in the pyramid want a quick and complete effect from prices back to earnings; higher up the pyramid we are not so sure that this is the right assumption to make for the medium term.'<sup>54</sup> Couzens represented the continuing view that expectations only entered the equation when inflation passed some 'exceedingly difficult to know' threshold.<sup>55</sup>

But identifying this threshold was hardly a problem when inflation exceeded 20%. At a theoretical level Steven Bell might have misgivings about Friedman's doctrine because it implied that, if you held unemployment above the natural rate long enough, prices would fall to zero.<sup>56</sup> But even this was countered by I.F.Edwards' positive review of Friedman (1975). This contains no criticism of the natural rate doctrine (though it does doubt the rational expectations premises that Friedman was now beginning to put under it) and concludes with an all-Friedmanite reading list for 'those who have expressed an interest.'<sup>57</sup>

A note from Wass to Hopkin in November 1975 suggests that the Permanent Secretary, the Chief Economic Adviser and even perhaps the Chancellor had now settled for the natural rate doctrine

As you have no doubt noticed, the Chancellor has referred in the course of a number of meetings we have had with him in recent months to the Treasury's

views about the ‘natural rate’ of unemployment and asked why we take 3 per cent as a sort of equilibrium figure.<sup>58</sup>

## 6. THE TREASURY FORECAST

The Treasury’s short-term forecasting model had never made much of the Phillips curve, getting its figures for current and expected wage settlements from the Department of Employment’s survey. This looked, one by one, at all current wage negotiations, forecasting their results or – in cases where they felt unable to do this – assuming that the current wage increase would persist.<sup>59</sup> The Treasury then brought in output and capacity utilisation variables, but only to forecast wage drift: the excess of actual earnings *over* negotiated rates.<sup>60</sup> The Medium-Term Assessment had been using a Phillips-type relation but in 1970 its range was cut to 12 months and the following year it was banished altogether.<sup>61</sup>

The Phillips curve had been jettisoned with some reluctance. Most forecasters thought it had become not so much extinct as elusive. ‘We are reluctant to abandon the idea of some relation between earnings and the pressure of demand’ wrote Rachel Lomax in 1972, ‘even though we are not at present able to estimate it.’<sup>62</sup> But a determined attempt to estimate it was going on as she spoke. It had been triggered, said Patricia Brown, by ‘the CBI initiative of July 1971 and the hoped-for response on pay settlements.’<sup>63</sup> Why the CBI’s rather feeble bit of anti-inflationary jawboning should have raised the cost of doing without a Phillips curve is not entirely clear. But in December the Treasury’s newest forecaster, Keith Cuthbertson, obliged with a test of the equation

$$\Delta \ln ER_t = \alpha + \sum_0 \beta_i \Delta \ln P_{t-i} + \sum_0 \gamma_i \ln Y_{t-i} + f(excessdemand) + u_t \quad ^{64}$$

where the proxies for excess demand were unemployment and the excess of vacancies over unemployment.

This was a radical step in two ways. First, it removed an exogenous wage rate from the right-hand side of the equation, ensuring that earnings and not merely earnings drift were regressed on demand variables. Secondly, Cuthbertson concluded that a long-run coefficient

of unity should be imposed on prices. He had tested a dozen versions of his equation (varying the lag structure each time) and found a coefficient often above unity and never less than 0.9.

The disappointment – to those who wanted their Phillips curve back – was the consistent insignificance of unemployment, which was accordingly removed when the new equation was put into the Treasury model in January 1972.<sup>65</sup> There was thus still no Phillips curve. True, current and lagged output growth had survived as independent variables, but with their coefficients constrained to add up to zero. This amounted to a first-differencing of growth (positive coefficients on more recent growth, for instance, would have to be balanced by negative ones on the longer lags), so that, in the words of the guidebook ‘The Treasury’s Forecasting Model’

... the only effect of the pressure of demand in the equation is on the level of wages. This represents the effect of (e.g.) overtime and piecework payments, and since the long-run elasticity of employment with respect to output is assumed to be unity, the effect of the pressure of demand on wages is in the long run zero.<sup>66</sup>

In other words the model was still relating pressure of demand to earnings drift, not earnings.

The one change which had already been made to Cuthbertson’s formulation was to replace the growth rates of wages, aggregate demand and prices by their levels. Patricia Brown explained that it was levels that they wanted to forecast, but ‘we are certainly not *idée fixe* about this.’<sup>67</sup> And the translation from growth rates to levels altered nothing about the trade-offs the model implied. Persistent money illusion had gone but a natural rate of unemployment had most certainly not arrived. On the contrary, the model was now implying a ‘natural’ rate of inflation which alone would save the unemployment figures from explosion. The equation was now taking the form

$$W_t = \sum_{i=0}^{T_1} \beta_i P_{t-i} + \sum_{i=0}^{T_2} \alpha_i Y_{t-i} + u_t \quad \text{where} \quad \sum \beta_i = 1, \sum \alpha_i = 0$$

But if, as the Treasury assumed, in the long run prices are driven by wages, this can be written

$$\text{as } P_t = \sum_{i=0}^{T_3} \gamma_i P_{t-i} + \sum_{i=0}^{T_2} \alpha_i Y_{t-i} + v_t \quad \sum \gamma_i = 1, \sum \alpha_i = 0$$

$$\text{i.e. } \sum_{i=0}^{T_3} \delta_i P_{t-i} = \sum_{i=0}^{T_2} \alpha_i Y_{t-i} + v_t \quad \sum \delta_i = \sum \alpha_i = 0$$

$$\text{i.e. } \sum_{i=0}^{T_3-1} \theta_i \Delta P_{t-i} = \sum_{i=0}^{T_2-1} \phi_i \Delta Y_{t-i} + v_t \quad \theta_i = \sum_{j=0}^i \delta_j, \quad \phi_i = \sum_{j=0}^i \alpha_j$$

The inflation rate is a function of the growth rate. In the long run, then, there is a unique inflation rate consistent with the growth rate needed to keep unemployment steady.

And in this form the earnings equation survived the amalgamation of the short- and medium-term models in 1974. The merger was justified by ‘the long-held view that it was unnecessary to have two models with such similar theoretical structures.’<sup>68</sup> It did, however, mean that the natural rate of inflation, a long-run property of the model which the short-run forecast might be able to ignore, was now working behind the scenes to influence the medium-term outlook too.

We say ‘behind the scenes’ because no one picked out this implication of the Treasury’s earnings equation. And, in any case, the persistent incomes policies from November 1972 onwards had consigned the equation to a period of oblivion. Typical was the National Income Forecast of February 1973 where the earnings forecast ‘is based on a working assumption equivalent to the continuation of Stage Two [the ‘£1 plus 4 per cent’ pay limit that was about to replace the initial freeze] throughout this year and into the next.’<sup>69</sup>

In fact the wage equation seems to have slipped from engine to wing mirror even when no incomes policy was in force. According to the Treasury Macroeconomic Model Technical Manual which set out the 1974 unified model:

For policy-off periods we have had to use exogenous forecasts which reflect as far as possible our views of the wage-determining process including possible effects of changes in the pressure of demand. We have however incorporated an

optional facility whereby there is an explicit relationship between earnings and prices.<sup>70</sup>

A medium-term model, then, which ditched the Phillips curve in 1971; a short-term version which, by setting the long-run coefficient on output at zero, not only continued to forecast wage drift instead of wages, but implied a natural rate of inflation not unemployment. And even this was suspended when, and not only when, an incomes policy appeared on the scene. Whatever the rest of the Treasury thought of the Phillips curve, it was failing at the end of 1974 to retain even a toehold in the forecasting section.

But this was about to change. The building of a unified model had also brought back the issue of inflationary expectations. The aggregate (sum of lags) coefficient was retained at one in the unified model, but with the length of the lag cut from 11 quarters to three, a nod to the very high inflation then current and – in the even shorter term – the way that price rises were quickly feeding into wage rises through the threshold agreements (compensation payments under stage 3 of Heath's incomes policy for all RPI rises beyond 8% from its level in October 1973.)<sup>71</sup> In the final version of the unified model the lag was raised back to seven quarters as the threshold clauses expired.<sup>72</sup> Neuberger commented that there was now 'a fairly general agreement that the long-run coefficient [on prices] should be unity.'<sup>73</sup>

'Why?' wrote Hopkin in the margin, and called a meeting to reopen the question, asking for a review of the model which would ensure that the theoretical structure 'represented as adequately as possible the beliefs of the economists who use it.'<sup>74</sup> The review took almost a year, and incorporated the results of an overseas tour by Andrew Britton and Christopher Riley. Every U.S. model they looked at had a Phillips curve. Expectations coefficients ranged from well below to above unity, while typically an increase of 1 percent in unemployment cut wage inflation by 1 per cent. The Canadians, like the Europeans, found this effect hard to pick up, and a disturbing feature of the U.S. models was that putting a Phillips curve into a macro model made some of them unstable: a small increase in, say, public spending might generate cycles of ever increasing amplitude both in the rate of inflation and in the rate of

growth. All this, Britton recollected in 2008, only reinforced Treasury forecasters' 'ambivalent attitude to economic theory and their great uncertainty as to how the economy works.' (pers. comm., 29 October 2008. )

It was against this background that Hopkin's requested review took place, starting with Vivien Hamilton's attempt 'to define the "Treasury View" of 1975'.<sup>75</sup> The status quo, she said, was still that labour market conditions might influence wage drift but not wage rates.

Except for the rather small, and transitory, overtime effect, the model treats the rate of inflation as a self-contained sub-system. Prices depend on wage costs and import prices. Wage costs depend on prices. This spiral will amplify an inflationary (or deflationary) impetus from import prices. From indirect taxes or from the 'pushfulness' of the unions. But the 'prime mover' of inflation is always outside the model.

Most other countries could find a Phillips tradeoff, and Britain probably had one too, 'although masked over the past five years by major disturbances which are not properly understood.'

The earnings equation now in the model is largely imposed. It should now have an additional term in unemployment – the coefficient on which would also be imposed.<sup>76</sup>

As for the long-run coefficient on prices, Hamilton's report recommended it should stay at unity. As the minutes of the 'Steering Group on the Development of the Model' recorded, 'This was disputed. Mr Neuberger and Mr Britton wanted unity while Mr Liesner and Sir Bryan Hopkin thought it should be nearer a half.'<sup>77</sup> One of the Liesner-Hopkin arguments was that workers who failed to anticipate inflation fully might 'over time ... forget reductions in their standard of living.' It was also 'thought unlikely' that workers would get full

compensation for price rises due to imports or indirect taxes. The other side countered with fiscal drag, which might make the coefficient on prices greater than one.<sup>78</sup> After toying with an interactive variable – the effect of prices on wages might itself depend on unemployment – a decision was taken. Majority verdicts had recently been introduced to the English legal system and in the end the Steering Group decided to follow the precedent. By majority vote, the coefficient stayed at unity.

Treasury forecasters were now talking about the natural rate of unemployment as an uncontentious idea. 'It is necessary to assume a natural rate of unemployment. I would propose for this purpose a figure of 3%' wrote Neuberger in April 1976.<sup>79</sup> Britton's brief to the Policy Co-ordination Committee said no one knew what the natural rate was, but the government must let the labour market find it 'since otherwise the consequence can only be a vicious circle with wages and prices rising ever faster.' When old Lord Kaldor alone demurred, the revolution seemed complete.<sup>80</sup>

It was not. When the new earnings equation was tried out, the aggregate coefficient on prices and lagged prices was promptly cut from unity to 0.8. This was partly on the grounds that an incomes policy was in operation and expected to last for the foreseeable future.<sup>81</sup> But the forecasters reported that even in a policy-off simulation, the unity coefficient gave a 'very poor correspondence with the data', not least by implying a natural rate of unemployment of 20%.

## 7. THE CHANCELLOR

In 2008 Denis Healey confirmed to the present writer that he had never believed in the natural rate hypothesis. (Healey, pers. comm., 9 April 2008). It was necessary to ask, given that his actual policies reveal nothing either way on this question. His opposition to reflation of the economy in 1975-76 never featured the claim that demand management was ineffective. His first and fullest statement to the Cabinet on the matter rather went in for a form of saturation bombing. Fiscal expansion would worsen inflation *and* worsen the balance of payments *and* damage foreign confidence *and* raise the PSBR *and* crowd out investment.<sup>82</sup>



He did once claim that a change in government spending would have no effect on unemployment, but this was in the context of cuts, and his reasoning on this occasion was highly aberrant -- so much so that Cabinet colleagues might have wondered if his new policy adviser was from the Adam Smith Institute.

[It was] wrong to suggest that cutting public expenditure could lead to increased unemployment. The question was whether people should be employed in the public or private sectors. Much public sector employment was, in the literal sense, non-productive; and what the economy needed was an increase in production.<sup>83</sup>

Healey soon reversed this view and by November was simply telling the Cabinet that you could not cut the PSBR without further unemployment.<sup>84</sup> At times he (and not only he) envisaged the economy as being in an inconvenient one-way street: a lower PSBR would destroy jobs but a higher one would do nothing to promote them.<sup>85</sup>

Neither does the fact that Healey sometimes (1975, 1976) deflated and sometimes (1977) reflatated the economy tell us anything about his attitude to the natural rate doctrine. There is nothing inconsistent in denying that demand management has permanent effects but using it to smooth out temporary fluctuations in the economy. Of course it excludes Healey from the New Classical persuasion, under which demand management is ineffective even in the short run, but this is scarcely a startling revelation. It appears that the sole Treasury standard-bearer for new classicism was Michael Beenstock, who wrote in April 1976:

... the real question is – can the authorities restore general equilibrium any faster than nature herself intended without any injurious side effects? If expectations are formed rationally and the economy is as well informed as the grand controller the answer is ‘no’ ... My own view is that expectations are on the whole formed sufficiently rationally. For this reason I have lost my erstwhile interest in optimal control as a normative device.<sup>86</sup>

## 8. THE PRIME MINISTER

And this brings us to Callaghan's words at the Labour party conference in 1976.

We used to think that you could spend your way out of a recession, and increase employment by cutting taxes and boosting Government spending. I tell you in all candour that that option no longer exists, and that in so far as it ever did exist, it only worked by injecting a bigger dose of inflation into the system. (Callaghan, 1976)

Nothing said at a party conference – let alone on economics – can have been mulled over as intensively as these lines. Bernard Donoughue (head of the prime minister's policy unit under both Wilson and Callaghan) argues convincingly that while some of the original draft might have been written by the monetarist Peter Jay (Callaghan's son-in-law), the sentiments, the final phrasing and the tremendous 'courage and conviction with which they were delivered to an initially unsympathetic Labour conference audience, were authentic Jim Callaghan.' (Donoughue, 1987, p.82)

What did Callaghan himself think the significance of his speech was? His fullest account was given to the political scientist Kevin Hickson in 2000. First (in Hickson's words) he wanted 'to develop a co-operative agenda in industrial relations, bringing the trade unions and the CBI together in order to achieve lower inflation and unemployment.' (Hickson, 2005, p.105) On this reading the speech was essentially an extension of Wilson's and Healey's previous lectures to the unions to the effect that one man's wage increase is another man's price increase – lecturing that Callaghan had shown no inclination to join. But he also said what he did (and these are Callaghan's own words now) because:

... the left wing majority on the National Executive committee was proposing measures to remedy the situation that were unrealistic, and would not have been successful. Inflation was the main enemy both in the UK and in other countries, and we would have been heading in the wrong direction if public expenditure had

been allowed to continue to grow faster than GDP as this was restricting investment in industry. (ibid., p.105)

So the speech was a warning to the Labour left and the unions (Callaghan can hardly have thought the CBI needed much preaching on the subject of public spending – not in 1976, anyway.) Yet thirty years later those who were around Callaghan still differ in their interpretations. Lord Donoughue sees it as an appeal for external confidence in the economy. (Donoughue, pers. comm., 19 December 2007) Lord Healey does not believe that Callaghan realised the full implications for economic policy of what he had said. (Healey, pers. comm., 9 April 2008) And Tony Benn believes, now as then, that Callaghan was intentionally ushering in what would become known as Thatcherism. (Benn, pers. comm., 12 December 2007)

## 9. CONCLUSION

How far Callaghan thought he was making history, and what kind of history, remains in dispute, and is certainly not settled by his statement to Hickson of his immediate motives. And it would be the worst sort of academic vice to take every remark every civil servant or politician made about inflation and unemployment and press it into service as a weighty reflection on macroeconomics. In any context – let alone the extraordinary times of the 1970s – most of the discussion is dictated by the immediate necessities of the situation, not a search for sustainable policy rules let alone economic theories. This is as true of forecasting as it is of policymaking and policy advice. In the words of one of the then forecasting team, Simon Wren-Lewis, ‘econometric evidence was much more influential than theory.’ (pers. comm., 30 July 2008) This echoes Neuberger’s judgement that most forecasters were not very interested in money illusion either way.

... the role of prices has until recently not been the subject of much theorising. The effect of prices has therefore been regarded mainly as a nuisance to be removed before

the real business of trade union militancy or unemployment is examined. This reaches its extreme in the case of Hines who produces a coefficient of  $-.979$  on prices without comment.<sup>87</sup>

Hines was not at the Treasury but the point, presumably, was that the Treasury had not commented on it either. However, three points need to be made. The first is that, however inconvenient the econometrics, it was the forecasters who insisted on the removal of money illusion from the Treasury model. Econometrically innocent senior advisers, who could have called for this with less statistical (but perhaps more ideological) baggage to lose, failed to do so or even opposed the move. The second point is that a prices and incomes policy was in force for much of the period 1968-76. This not only made it very hard to estimate the relation between unemployment and inflation but put forecasters under pressure to consider nothing but the terms of the incomes policy when forecasting wages. In Britton's words 'senior officials and ministers were very keen that nothing should be published which said the policy might not work.' Thus the November 1975 National Income forecast was that all wages would rise by £6 a week because that was what the incomes policy said. 'It doesn't mean that we believed it – we didn't.' (pers. comm., 20 December 2007; Britton, 1991, p.87)

The final point is that the forecasting equation might have owed more to theory had there been more agreement on what the theory should be. Writing on the Phillips curve in 1975, Steven Bell said:

In the present state of flux it is probably safe to say that there is no Treasury view, rather that there are many views within the Treasury which rarely agree and which frequently violently contradict. This reflects the lack of consensus in the economics profession as a whole and will presumably disappear when a new consensus on wage inflation theory emerges.<sup>88</sup>

But even as Bell wrote, a degree of consensus was emerging – not, admittedly, over the slope of the curve but over the fact that unemployment did matter. So why did the doctrine that unemployment could cure inflation disappear and then reappear? Its career seems to have depended not on its own merits but on the changing credibility of alternative cures. In the minds of the Chancellor, the Permanent Secretary and the Chief Economic Adviser, deflation went from being an ineffectual waste of resources to a necessary evil in the space of a few months in 1974-5, not because of any research at the Treasury or anywhere else, but because the failure of the Social Contract had been established beyond all reasonable doubt. All the same, the background shift in the Treasury's theoretical stance did at least give the policymakers a consistent foundation on which to stand.

There is, indeed, a parallel with the Keynesian revolution, another episode where policy got there first and theory followed on. In the early 1930s, Keynes's policy prescriptions were little different from those of Pigou or any other living representative of the orthodoxy he attacked in the *General Theory*. It was Keynes, however, who put forward theories consistent with the fiscal and monetary expansion, and opposition to further cuts in wages, which had become the policy orthodoxy. By the end of our period the Treasury was still not giving unambiguous support to the new orthodoxy announced by Callaghan, consistent with the rest of Healey's Chancellorship, implemented with a vengeance by Sir Geoffrey Howe (1979-83), identified by Lawson, and pursued by every government since (at least until Gordon Brown's measures in November 2008.) But eventually it did adopt a forecasting model consistent with a vertical long-run Phillips curve. By then Callaghan was out of office and, for all her politically necessary disdain for the 'academic' natural rate doctrine – no politician wants to be open to accusations of presiding over mass unemployment and accepting it as 'natural' – the new model chimed in well enough with the ideas of Margaret Thatcher.

In fact she may well have found it more congenial than its creators did. 'We were horrified at the level of unemployment' says Britton, 'and we saw it as a macro problem not a labour market problem well into the 80s.' (pers. comm., 20 December 2007). The difficulty of

identifying the natural rate had not gone away but there was at least a certainty that it could not be three million.

#### APPENDIX – CHRONOLOGY OF EVENTS

November 1967: pound devalued from \$2.80 to \$2.40. Roy Jenkins becomes Chancellor

March 1968: Friedman's presidential address to the AEA postulates natural rate of unemployment and no long-run tradeoff between unemployment and inflation

June 1970: Conservatives replace Labour government: Edward Heath becomes prime minister

July 1970: Anthony Barber becomes chancellor

January 1972: unemployment reaches one million

March 1972: highly expansionary Barber budget

June 1972: pound floats

November 1972: statutory three-month freeze on wages and prices

February 1973: Stage 2 of Heath's incomes policy: "£1 + 4%" limit on pay rises

October 1973: Stage 3 of policy incorporates threshold payments (compensation for RPI rise exceeding 8%)

October 1973: first large OPEC oil price rise (total rise in 1973-4 is 300%)

Winter 1973-4: miners' overtime ban and strike against settlement offered under stage 3

February 1974: Heath calls election in response to miners' strike

March 1974: minority Labour government replaces Conservatives, Wilson returns as prime minister, Healey becomes Chancellor. 'Social contract with unions' announced.

May 1975: price inflation peaks at 26%

July 1975: Incomes policy sets £6 a week limit on pay rises (zero for those earning more than £8500 a year)

February 1976: public expenditure cut by £3.5 billion

April 1976: Callaghan replaces Wilson as prime minister

August 1976: second phase of incomes policy: various percentage limits but no one to have more than £4 rise

September 1976: Britain applies to the IMF for \$5 billion loan

September 1976: Callaghan tells Labour party conference that expanding demand is no cure  
for unemployment

December 1976: terms of IMF loan agreed

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CHART 1



